



**FPL**

APR 25 2008

10 CFR § 50.73  
L-2008-097

U. S. Nuclear Regulatory Commission  
Attn: Document Control Desk  
Washington, D. C. 20555-00001

Re: Turkey Point Unit 4  
Docket No. 50-251  
Reportable Event: 2008-001-00  
Date of Event: February 29, 2008  
Manual Reactor Trip due to High Level in 4A Steam Generator

The attached Licensee Event Report 05000251/2008-001-00 is being submitted pursuant to the requirements of 10 CFR 50.73(a)(2)(iv)(A) to provide notification of the subject event.

If there are any questions, please call Ms. Olga Hanek at 305-246-6607.

Very truly yours,

William Jefferson, Jr.  
Vice President  
Turkey Point Nuclear Plant

Attachment

cc: Regional Administrator, USNRC, Region II  
Senior Resident Inspector, USNRC, Turkey Point Nuclear Plant

IE22  
NRR

## LICENSEE EVENT REPORT (LER)

Estimated burden per response to comply with this mandatory collection request: 50 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the Records and FOIA/Privacy Service Branch (T-5 F52), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to [infocollects@nrc.gov](mailto:infocollects@nrc.gov), and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

## 1. FACILITY NAME

Turkey Point Unit 4

## 2. DOCKET NUMBER 3. PAGE

05000251

1 of 4

## 4. TITLE

Manual Reactor Trip due to High Level in the 4A Steam Generator

5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO.	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
2	29	2008	2008	001	00	4	25	2008	FACILITY NAME	DOCKET NUMBER
9. OPERATING MODE			11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR§: (Check all that apply)							
1			<input type="checkbox"/> 20.2201(b)	<input type="checkbox"/> 20.2203(a)(3)(i)		<input type="checkbox"/> 50.73(a)(2)(i)(C)		<input type="checkbox"/> 50.73(a)(2)(vii)		
			<input type="checkbox"/> 20.2201(d)	<input type="checkbox"/> 20.2203(a)(3)(ii)		<input type="checkbox"/> 50.73(a)(2)(ii)(A)		<input type="checkbox"/> 50.73(a)(2)(viii)(A)		
10. POWER LEVEL			<input type="checkbox"/> 20.2203(a)(1)	<input type="checkbox"/> 20.2203(a)(4)		<input type="checkbox"/> 50.73(a)(2)(ii)(B)		<input type="checkbox"/> 50.73(a)(2)(viii)(B)		
			<input type="checkbox"/> 20.2203(a)(2)(i)	<input type="checkbox"/> 50.36(c)(1)(i)(A)		<input type="checkbox"/> 50.73(a)(2)(iii)		<input type="checkbox"/> 50.73(a)(2)(ix)(A)		
			<input type="checkbox"/> 20.2203(a)(2)(ii)	<input type="checkbox"/> 50.36(c)(1)(ii)(A)		<input checked="" type="checkbox"/> 50.73(a)(2)(iv)(A)		<input type="checkbox"/> 50.73(a)(2)(x)		
			<input type="checkbox"/> 20.2203(a)(2)(iii)	<input type="checkbox"/> 50.36(c)(2)		<input type="checkbox"/> 50.73(a)(2)(v)(A)		<input type="checkbox"/> 73.71(a)(4)		
			<input type="checkbox"/> 20.2203(a)(2)(iv)	<input type="checkbox"/> 50.46(a)(3)(ii)		<input type="checkbox"/> 50.73(a)(2)(v)(B)		<input type="checkbox"/> 73.71(a)(5)		
			<input type="checkbox"/> 20.2203(a)(2)(v)	<input type="checkbox"/> 50.73(a)(2)(i)(A)		<input type="checkbox"/> 50.73(a)(2)(v)(C)		<input type="checkbox"/> OTHER		
			<input type="checkbox"/> 20.2203(a)(2)(vi)	<input type="checkbox"/> 50.73(a)(2)(i)(B)		<input type="checkbox"/> 50.73(a)(2)(v)(D)		Specify in Abstract below or in NRC Form 366A		

## 12. LICENSEE CONTACT FOR THIS LER

NAME

Stavroula Mihalakea

TELEPHONE NUMBER (Include Area Code)

305-246-6454

## 13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT

CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX

## 14. SUPPLEMENTAL REPORT EXPECTED

☐ YES (If yes, complete 15. EXPECTED SUBMISSION DATE)☒ NO

## 15. EXPECTED SUBMISSION DATE

MONTH	DAY	YEAR
-	-	-

ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)

On February 29, 2008, Turkey Point Unit 4 was in Mode 1. Power escalation was in progress following an automatic reactor trip that occurred on February 26, 2008 due to an under voltage condition on the electrical grid. At 0447, following the turbine and main generator synchronization the operating crew loaded the main generator abnormally fast. The operator at the feedwater controls was using the Main Feedwater Regulating Bypass Valves to control steam generator (SG) levels in manual. The increasing steam demand resulted in SG level fluctuations causing the SG levels to "swell." The operator did not stabilize SG levels and he did not communicate his concerns to the operating crew. The 4A SG level exceeded 75% Narrow Range (i.e., the procedural upper limit for performing a manual reactor trip due to high steam generator level). At 0451, with Turkey Point Unit 4 reactor power at 10%, the operating crew initiated a manual reactor trip due to high level in the 4A steam generator. There were no equipment issues, and no adverse effects on plant parameters. The root cause of the event is insufficient guidance for the initial loading of the main generator and for stabilizing power while preparing to transfer to automatic feed regulating valve control. Corrective actions include procedural changes to provide guidance for ramp rates during initial turbine loading and appropriate hold points to ensure proper control of plant parameters. Additional corrective actions have been generated to address control room oversight and effective communications.

**LICENSEE EVENT REPORT (LER)**  
TEXT CONTINUATION

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
Turkey Point Unit 4	05000251	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	2 of 4
		2008	- 001	- 00	

**NARRATIVE**

**A. REPORTABLE EVENT**

Turkey Point Unit 4 manual reactor trip due to high water level in the 4A steam generator is being reported herein pursuant to 10 CFR 50.73 (a) (2)(iv) (A) as any event or condition that resulted in manual or automatic actuation of the reactor protection system.

**B. INITIAL CONDITIONS**

Turkey Point Unit 4 was in Mode 1.

**C. DESCRIPTION OF EVENT**

On February 29, 2008, Turkey Point Unit 4 was in Mode 1 at approximately 7% power. Power escalation was in progress following an automatic reactor trip that occurred on February 26, 2008 due to an under voltage condition on the electrical grid.

At 0447, following the turbine [EIS:TA] and main generator [EIS:TB] synchronization in accordance with procedural guidance, the operator at the turbine controls was increasing load to 40 MWe in increments of 5-10 MWe. The procedure used for this evolution, 4-GOP-301, Hot Standby to Power Operation, did not specify loading rates or hold points, permitting the operators to determine loading rates based on plant conditions. During this power escalation evolution, the operating crew was performing an abnormally fast loading. The main generator was loaded to 40 MWe in less than 2 minutes causing frequent reactivity changes. The abnormally fast loading of the main generator shifted the Unit Supervisor's focus from overall oversight to peer checking a large number of reactivity changes.

While still increasing generator loading, following several procedural steps to ensure steam dump operation, the operating crew was in the process of placing the main feedwater controls in automatic. The steam generator [EIS:SG] levels had been oscillating even before the turbine and main generator synchronization. The operator at the feedwater controls was using the Main Feedwater Regulating [EIS:FRV] Bypass Valve to control steam generator levels. During the power escalation and turbine loading evolution he did not stabilize the SG levels and he did not communicate to the operating crew his concerns regarding controlling the SG levels. When he opened the 4A Main Feedwater Regulating Isolation valve, he observed increasing SG levels, which led him to believe that the higher steam generator level was caused by leak-by flow from the main feedwater isolation valve. At approximately 0449, per direction from the Unit Supervisor he closed the Main Feedwater Regulating Control Bypass Valve in an effort to reduce level in the steam generators. During that time, load was continually being increased until approximately 0450, which lead to additional level "swelling."

The steam generator level control issues prompted control room questions and communications for stabilizing the plant. The abnormally fast loading of the generator and the increased steam demand resulted in exacerbated steam generator level fluctuations causing the SG levels to "swell." The operator at the turbine controls promptly reduced load. At that time, the crew noticed that the 4A SG level had exceeded 75% NR, i.e., the procedural upper limit for initiating a manual reactor trip. At 0451, with Turkey Point Unit 4 reactor power at 10%, the operating crew initiated a manual reactor trip due to high level in the 4A steam generator.

The operators verified that the reactor and turbine were tripped and stabilized the plant in accordance with procedural guidance. There were no equipment issues, and no adverse effects on plant parameters. In accordance with 10 CFR 50.72 (b) (2) (iv) (B), this event (Event Notification #44016) was reported to the Nuclear Regulatory Commission Operation Center on February 29, 2008 at 0547. This event is being reported herein pursuant to 10 CFR 50.73 (a) (2) (iv) (A) as any event or condition that resulted in manual or automatic actuation of the reactor protection system.

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**NARRATIVE****D. EVENT ANALYSIS**

The event was evaluated to determine the root cause and contributing casual factors.

The procedure used for this evolution, 4-GOP-301, Hot Standby to Power Operation, does not provide guidelines for the rate of initial loading of the main generator. The operating crew determines the loading rate based on their training and plant conditions. During this event, an abnormally fast generator loading was implemented, which exacerbated steam generator level fluctuations and resulted in the loss of the 4A steam generator level control.

The operator at the reactor controls (RCO) did not attend the just-in-time-training (JITT), due to operations personnel demands resulting from the dual unit trip, and therefore, did not benefit from the crew's training and practice session. This changed crew dynamics for returning Unit 4 to power from the way they practiced in the plant's simulator. Having a different crew makeup than during the JITT contributed to the crew's fast generator loading and failure to include the feedwater operator in all load change communications.

The abnormally fast generator loading implemented by the operating crew focused the unit supervisor on peer checking the RCO as recommended in the Nuclear Administrative Procedure, NAP- 402, Conduct of Operations. The requirement for frequent peer checks of the RCO weakened the unit supervisor's overall oversight role during the evolution of power escalation.

The turbine operator and senior reactor operator continued to increase turbine load while the steam generator level continued to increase after the Main Feed Regulating Bypass Valves were closed. The operator at the feedwater controls did not stabilize SG levels and did not communicate his concerns about the SG level control.

**E. ROOT CAUSE**

The root cause of the event is insufficient guidance for the initial loading of the main generator and for stabilizing power while preparing to transfer to automatic feed regulating valve control. Other factors which contributed to the root cause are: (1) not all the operating crew members attended the same JITT to practice this evolution, (2) the abnormally fast loading of the main generator shifted the Unit Supervisor's focus from overall oversight to peer checking a large number of reactivity changes, (3) a weakness in understanding the SG "shrink" and "swell" concept and, (4) failure to communicate the SG levels and trends to the rest of the operating crew members.

**F. CORRECTIVE ACTIONS**

Turkey Point is in the process of implementing procedural changes to provide guidance for ramp rates during turbine initial loading and appropriate hold points to ensure proper control of plant parameters.

Corrective actions to address the event's contributing factors have been entered in the Turkey Point Corrective Action program.

**G. SAFETY ASSESSMENT**

This event resulted in a manual reactor trip due to the excessive feedwater level in the 4A SG. The reactor power was at 10% at the time of the trip. There was no challenge to the integrity of the primary or secondary plant. The plant response during this event is bounded by an event assuming an increase of 200% feedwater flow analyzed in Turkey Point's Updated Final Safety Analysis Report. This event is not a safety significant event, and had no adverse effect on the health and safety of the public.

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**NARRATIVE**

**H. ADDITIONAL INFORMATION**

The condition report that includes the post trip report and the root cause evaluation is CR 2008-7157.  
EIS codes are shown in the format [EIS SYSTEM: IEEE Component function identifier, second component function identifier (if applicable)]

Previous Similar Events

No similar events were found for the past two years.